receiving a first signal at said locatable unit;

estimating a propagation duration using a preset duration from a preset estimate table as adjusted by subsequent signals from said first one of said locator and locatable units to said second one of said locator and locatable units, said preset duration being an approximation of propagation characteristics required for said first signal to propagate between said locator and locatable units;

determining a point in time at which a second signal may be transmitted from said locatable unit so that said second signal should arrive at said locator unit at a predetermined point in time; and

transmitting said second signal from said locatable unit, said second signal being modulated to convey data which describe said estimated propagation duration of said first signal.

**22**. A method of operating a locatable unit as claimed in claim **21** wherein:

said method additionally comprises, prior to said receiving step, the step of estimating a duration required for an acquisition signal to propagate between said locator and locatable units;

said method additionally comprises the step of transmitting a third signal at a point in time which is responsive to said acquisition signal propagation duration, said second unit initiating said method of locating by transmitting said third signal prior to transmission of said first signal;

said receiving a first signal step comprises the step of obtaining data describing an intermediate timing offset from said first signal; and

said first signal duration estimating step comprises the step of defining said estimated duration to be said

acquisition signal propagation duration, compensated by said intermediate timing offset.

**23**. A method of operating a radio telecommunications system having at least one satellite moving in an orbit around the earth and having at least one subscriber unit located proximate the earth's surface, said method comprising the steps of:

transmitting a first signal from said satellite;

receiving said first signal at said subscriber unit;

estimating, at said subscriber unit, a Doppler component of said received first signal and a propagation duration required for said first signal to propagate between said satellite and said subscriber unit;

transmitting a second signal from said subscriber unit, said second signal being modulated to convey data which describe said estimated Doppler component of said first signal and to convey data which describe said propagation duration;

receiving said second signal at said satellite;

measuring, at said satellite, a frequency offset between a frequency at which said second signal is received at said satellite and a predetermined frequency, and a timing offset between a point in time at which said second signal is received at said satellite and a predetermined point in time; and

determining a location of said subscriber unit relative to the earth in response to said estimated Doppler component, said estimated propagation duration, said frequency offset, and said timing offset, said estimated Doppler component and said frequency offset defining a curve whereon said location is located and said estimated propagation duration and said timing offset defining a propagation delay curve whereon said location is located.

**24**. A method of operating a radio telecommunications system as claimed in claim **23** additionally comprising the steps of:

determining a frequency at which said second signal may be transmitted from said subscriber unit so that said second signal will substantially exhibit said predetermined frequency when received at said satellite; and

determining a point in time at which said second signal may be transmitted from said subscriber unit so that said second signal will arrive at said satellite substantially at said predetermined point in time.

**25**. A method of operating a radio telecommunications system as claimed in claim **23** wherein said determining step comprises the steps of:

obtaining an integrated propagation duration parameter, said integrated propagation duration parameter being approximately equivalent to said estimated propagation duration plus one-half of said timing offset; and

obtaining an integrated Doppler parameter, said integrated Doppler parameter being approximately equivalent to said estimated Doppler component plus one-half of said frequency offset.

**26**. A method of operating a radio telecommunications system as claimed in claim **25** wherein said determining step comprises the step of obtaining data describing a time at which said propagation duration parameter and said Doppler parameter are valid, said data being configured to define said time as occurring approximately half way between said transmitting a first signal step and said receiving said second signal step.

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